

Application No.: 10/665,914
Dated: November 16, 2004
Amendment

REMARKS/ARGUMENTS

The Examiner has objected to the drawings on the basis that Fig. 1 should be labeled as "prior art". Applicants herewith include a replacement sheet for substitution with the current Fig. 1. The replacement drawing clearly indicates "prior art" and does not obstruct any portion of the drawing figure. Based upon applicants' submission of this replacement drawing, applicants respectfully requests that the objection to the drawings be removed.

The Examiner has rejected claims 1, 2, 11 and 12 under 35 U.S.C. 102(b) as being anticipated by Noble et al., U.S. Patent No. 3,788,772. To support these grounds for rejection, the Examiner notes that, among other things, the device in Fig. 3 of Noble et al. includes "a machined spring 26 attached at a first end to said displacer 15." Further, the Examiner states that the machined spring 26 provides "a constraining force upon said displacer moves in either said first axial direction or said second axial direction." Applicants, after careful review, respectfully assert that both of these statements are incorrect. First, primary spring 26 is attached to drive piston 22 and not to regenerator/displacer 15 at a first end. (See column 3, lines 22-25) Second, the spring 26 in Noble et al. is not a machined spring as claimed by applicants. There is no indication or other teaching in either Fig. 3 or the Noble et al. specification that spring 26 is anything other than a conventional mechanical spring formed as a helical wire. That this must be the case is further illustrated by the fact that the Noble et al. apparatus in Fig. 3 requires the use of a second set of springs, denoted as rebound springs 28, to prevent drive piston 22 from moving too far in the downward axial direction as shown in Fig. 3.

Applicants' claimed invention overcomes the need for two sets of springs because, as claimed, the single machined spring can control movement in both an upward and a downward axial direction. This is in direct contrast to the Noble et al.

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device which, despite Examiner's assertion, does not provide a constraining force in each of two axial directions. In view of the above and because Noble et al. does not disclose the claimed limitations present in claim 1 or 11 in their respective dependent claims 2 and 12, applicants respectfully request that the rejection of these claims under 35 U.S.C. as being anticipated by Noble et al., U.S. Patent No. 3,788,772, be removed.

The Examiner next rejects claims 1, 2, 10-12 and 18 under 35 U.S.C. 102(b) as being anticipated by Veringa et al., U.S. Patent No. 6,151,891. As is the case with the Noble et al. reference above, Veringa et al. does not disclose or otherwise teach the use of a single machined spring for the purpose of controlling displacer movement in two opposing axial directions. Rather, the Veringa et al. spring 15 is of the conventional helical wire type.

In order to constitute anticipation under the law, a patent publication must contain within its four corners a sufficient description to enable the person of ordinary skill to make the invention without undue experimentation. All material elements of a claim must be found in one prior art source, a mere suggestion is not enough and essential elements are not to be read into a reference. If a reference does not expressly recite or disclose applicants' claimed invention as is believed to be the case here, then, it is required under principles of inherency that the claimed subject matter be inevitably produced when the teachings of the relied upon reference are followed, in order for a proper case of anticipation to be found. It is believed that applicants' claimed invention not fairly taught or suggested, and that following the teachings of Veringa et al. would not inevitably produce the invention, as claimed. Since there is no express or implied teaching in Veringa et al. to use a machined spring for the purpose of controlling displacer movement as claimed by applicants in each of claims 1, 2, 10-12 and 18, it is respectfully requested that the

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rejection of these claims under 35 U.S.C. 102(b) as being anticipated by Veringa et al., U.S. Patent No. 6,151,896, be removed.

The Examiner has rejected claims 3 and 9 under 35 U.S.C. 103(a) as being unpatentable over either Noble et al., U.S. Patent No. 3,788,772 or Veringa et al., U.S. Patent No. 6,151,896. In support of this rejection, the Examiner states that the additionally recited subject matter would have been an obvious design choice.

With regard to the rejection of claims 3 and 9 under 35 U.S.C. 103(a) as being unpatentable over Noble et al., applicants believe, as indicated above, that the spring of Noble et al. is not a machined spring, a specific requirement of each of applicants' claims. That Noble et al. does not teach or suggest the use of a machined spring is the case is further evidenced by the fact that the Noble et al. apparatus requires the use of a second set of springs. In view of applicants' arguments that claim 1, from which claims 3 and 9 depend, is allowable, applicants respectfully assert that claims 3 and 9 are also allowable as a result of their dependency on claim 1. As such, applicants respectfully request that the rejection of claims 3 and 9 under 35 U.S.C. 103(a) as being unpatentable over Noble et al., U.S. Patent No. 3,788,772, be removed.

With regard to the rejection of claims 3 and 9 under 35 U.S.C. 103(a) as being unpatentable over Veringa et al., U.S. Patent No. 6,151,896, applicants reiterate that the spring of Veringa et al. is not a machined spring, a specific requirement of each of applicants' claims. In view of applicants' position that claim 1, from which claims 3 and 9 depend, is allowable, applicants respectfully suggest that claims 3 and 9 are also allowable, as a result of their dependency on claim 1. In view thereof, applicants respectfully request that the rejection of claims 3 and 9 under 35 U.S.C. 103(a) as being unpatentable over Veringa et al., U.S. Patent No. 6,151,896, be removed.

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Applicants note that the Examiner has indicated that claims 4-8 and 13-17 represent allowable subject matter. Based upon the above arguments, applicants respectfully assert that it is not necessary to rewrite these claims in independent form.

The references cited by the Examiner as being of interest have been reviewed and found not to be pertinent to the issue of the patentability of the instant claims.

In conclusion, based upon the above, it is respectfully submitted that each of claims 1-18 currently pending in the present application are in condition for allowance. Prompt notification of allowance is respectfully solicited.

Respectfully submitted,

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